140

CONTRIBUTIONS
from
BOYCE THOMPSON INSTITUTE

VOLUME 24
1967-1971

Published Quarterly by
BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, INC.
Yonkers, New York 10701

PUBLICATIONS COMMITTEE

Dewayne C. Torgeson, Chairman
Alva A. App
Bettie M. Brooks
E. H. Buckley
Herman Gershon
S. E. A. McCallan
R. C. Staples
L. H. Weinstein

Joan DeFato, Librarian and Indexer
William G. Smith, Jr., Photographer

The publication of the Contributions from Boyce Thompson Institute will be discontinued with this volume. Back issues of all 24 volumes are available at $6.00 per volume and $1.25 per individual issue. Reprints of the above and of papers to be published by the staff of the Boyce Thompson Institute in other journals may be obtained upon request.

TABLE OF CONTENTS

VOLUME 24

No. 1

Issued December 30, 1967

Page

Lela Viola Barton (November 14, 1901—July 31, 1967). S. E. A. McCallan 1
The Formation of Aflatoxin Derivatives. Eli V. Crisan and A. T. Grefig. . 3

Notes

Continuous Monitoring of High Concentrations of Atmospheric Fluoride. D. C. MacLean, L. H. Weinstein, and R. H. Mandl. 9
A Seeder for Greenhouse Use. S. S. Szabo and L. E. Limpel. 11
A Convenient Preparation of Lysopine and Its Dibutyl N^{ϵ}-Trifluoroacetyl Derivative. Robert Manasse and Herman Gershon. 15

No. 2

Issued April 3, 1968

Thermo-, Photo-Effect on Rosaceous Seeds during Germination as Expressed in Subsequent Seedling Development. Dalton Wang and Jane Beardow. 17
Studies on Fluoro-organic Compounds in Plants. I. Metabolism of 2-^{14}C-Fluoroacetate. Peter W. Preuss, Arnoldina G. Lemmens, and Leonard H. Weinstein. 25
Secondary Mechanisms of Antifungal Action of Substituted 8-Quinolinols. I. 5- and 5,7-Substituted 8-Methoxyquinolines. Herman Gershon and Raulo Parmegiani. 33

Note

A 2,4-Dinitrophenylhydrazine Spray for the Identification of Aflatoxin B_1 on Thin-Layer Chromatoplates. Eli V. Crisan. 37

No. 3

Issued July 14, 1968

Mobilization Factors in Uredospores and Bean Leaves Infected with Bean Rust Fungus. Harold M. Dekhuijzen and Richard C. Staples. . . . 39
Observations on Host Selection by *Tomicobia tibialis* Ashmead (Hymenoptera: Pteromalidae). Richard E. Rice. 53
Transmission of Corn Stunt Virus by the Leafhopper *Deltocephalus sonorus* Ball. Robert R. Granados, Ralph D. Gustin, Karl Maramorosch, and Warren N. Stoner. 57

No. 4

Issued October 23, 1968

Insect and Host Factors in the Aggregation of the Southern Pine Beetle. J. P. Vité and J. A. A. Renwick. 61
Isolation of the Population Aggregating Pheromone of the Southern Pine Beetle. J. A. A. Renwick and J. P. Vité. 65

Studies on the Attack Behavior of the Southern Pine Beetle. II. Response to Attractive Host Material. J. E. COSTER and R. I. GARA 69
Studies on the Attack Behavior of the Southern Pine Beetle. III. Sequence of Tree Infestation within Stands. R. I. GARA and J. E. COSTER 77
Studies on the Attack Behavior of the Southern Pine Beetle. IV. Influence of Host Condition on Aggregation Pattern. J. P. VITÉ and R. G. CROZIER 87
Development of Controlled Conditions for the Study of Red Stele Disease of Strawberries. WILLARD K. WYNN 95

No. 5

ISSUED FEBRUARY 5, 1969

Study of the Transfer of Amino Acids from Aminoacyl Transfer Ribonucleic Acid into Protein by Ribosomes from Uredospores of the Bean Rust Fungus. ZOHARA YANIV and RICHARD C. STAPLES 103
Metabolism of Amino Acids and Amides in Germinating Seeds. DALTON WANG 109
Metabolism of ^{14}C-Labeled Proline in Higher Plants. DALTON WANG 117
Metabolism of Glucomannan-Protein during Germination of Bean Rust Spores. WILLARD K. WYNN and CORINNE GAJDUSEK 123

No. 6

ISSUED MAY 2, 1969

The Relative Influence of Chemical and Physical Properties on the Fungitoxicity of Tetrachloroisophthalonitrile and Some of Its Analogues. N. J. TURNER and R. D. BATTERSHELL 139

NOTE

Secondary Mechanisms of Antifungal Action of Substituted 8-Quinolinols. II. Substituted Quinolines. HERMAN GERSHON, RAULO PARMEGIANI, MAYNARD W. MCNEIL, and YVONNE J. HINDS 149

No. 7

ISSUED AUGUST 9, 1969

Studies on Fluoro-Organic Compounds in Plants. II. Defluorination of Fluoroacetate. PETER W. PREUSS and LEONARD H. WEINSTEIN 151
Transfer Activity of Ribosomes from Germinating Uredospores. ZOHARA YANIV and RICHARD C. STAPLES 157

NOTE

Accumulation of Fluoride by Forage Crops. D. C. MACLEAN, R. E. SCHNEIDER, and L. H. WEINSTEIN 165

No. 8

ISSUED OCTOBER 9, 1969

Mixed Ligand Chelates of Copper(II) with 8-Quinolinol and Arylhydroxycarboxylic Acids. III. The Role of Stability Constants in Antifungal Action. HERMAN GERSHON, STEPHEN G. SCHULMAN, and DAVID OLNEY 167
Electron Microscopy of Plants and Insect Vectors Infected with the Corn Stunt Disease Agent. ROBERT R. GRANADOS 173

CONTENTS

No. 9

ISSUED JANUARY 9, 1970

Response of Some Predators and Parasites of *Ips confusus* (LeC.) (Coleoptera: Scolytidae) to Olfactory Attractants. RICHARD E. RICE 189

NOTE

Modification of the Mast Ozone Meter for Continuous Operation. RICHARD H. MANDL 195

No. 10

ISSUED APRIL 14, 1970

Evidence for a Template RNA in Resting Uredospores of the Bean Rust Fungus. L. RAMAKRISHNAN and RICHARD C. STAPLES 197

The Relationship between Chemical Reactivity, Oil:Water Partitioning, and Temperature on the Rate of Fungicidal Action of Tetrachloroisophthalonitrile and Some of Its Analogues. N. JOE TURNER and R. BATTERSHELL 203

Effects of Hydrogen Fluoride on the Acid-Soluble Nucleotide Metabolism of Plants. D. C. MCCUNE, L. H. WEINSTEIN, and JILL F. MANCINI 213

NOTES

Rate of Fungicidal Action. N. JOE TURNER 227

Gigantic Fungi. S. S. RISTICH 231

No. 11

ISSUED JUNE 26, 1970

Accelerated Degradation of Herbicides in Soil by the Application of Microbial Nutrient Broths. GEORGE W. MCCLURE 235

No. 12

ISSUED SEPTEMBER 28, 1970

Relative Susceptibility of Seven Grain Sorghum Hybrids to Hydrogen Fluoride. R. E. SCHNEIDER and D. C. MACLEAN 241

NOTE

Antifungal Properties of Methyl Esters of Fatty Acids and 2-Fluoro Fatty Acids. HERMAN GERSHON, RAYMOND L. RODIN, RAULO PARMEGIANI, and PATRICIA K. GODFREY 245

No. 13

ISSUED FEBRUARY 18, 1971

Symposium on Population Attractants at Freiburg University, Freiburg im Breisgau, Germany, June 22 and 23, 1970 249

Preface. J. P. VITÉ 249

Participants 250

The Boyce Thompson Institute Program in Forest Entomology that Led to the Discovery of Pheromones in Bark Beetles. GEORGE L. MCNEW ... 251

An Energy-Transduction Mechanism in Chemoreception by the Bark Beetle, *Scolytus multistriatus*. DALE M. NORRIS, JAMES E. BAKER, THOMAS K. BORG, STEPHEN M. FERKOVICH, and JACK M. ROZENTAL .. 263

Electrophysiological Investigations on Response to Pheromones in Bark Beetles. Thomas L. Payne 275
Systems of Chemical Communication in *Dendroctonus*. J. A. A. Renwick and J. P. Vité 283
Aspects of the External and Internal Factors Affecting the Olfactory Orientation of *Blastophagus piniperda* (Coleoptera: Scolytidae). Vilho Perttunen, Helmer Oksanen, and Esko Kangas 293
Studies on the Chemical Factors Involved in the Olfactory Orientation of *Blastophagus piniperda* (Coleoptera: Scolytidae). Helmer Oksanen, Vilho Perttunen, and Esko Kangas 299
Evidence of an Aggregating Pheromone in the Ash-Bark Beetle, *Leperisinus fraxini* (Coleoptera: Scolytidae). J. Schönherr 305
Evidence of a Population Aggregating Pheromone in *Ips typographus* (Coleoptera: Scolytidae). Alf Bakke 309
Sequence of Douglas-Fir Beetle Attraction and Its Ecological Significance. J. A. Rudinsky 311
Pheromone Production by Male Boll Weevils as Affected by Food and Host Factors. D. D. Hardee 315
Differential Diagnosis and Isolation of Population Attractants. J. P. Vité and J. A. A. Renwick 323
A Method for Observing and Recording the Flight Behavior of Tethered Bark Beetles in Response to Chemical Messengers. P. R. Hughes and G. B. Pitman 329
Chemical Aspects of Bark Beetle Aggregation. J. A. A. Renwick 337
Pest Management Systems Using Synthetic Pheromones. J. P. Vité 343

No. 14

Issued June 25, 1971

Reinterpretation of the Apparent Fungitoxicity of Bis(5,7-dichloro-8-quinolinolato)copper(II) at Low pH Values. Implications of the Fungal Spore Wall as a Barrier against Potential Antifungal Agents. Herman Gershon, William P. Kilroy, and Stephen G. Schulman 351
The Effect of Oil:Water Partitioning and Chemical Reactivity on the Reaction of Halogenated Isophthalonitriles with *Monilinia fructicola* Spores. N. Joe Turner 357
Effects of Hydrogen Fluoride Fumigation on Alfalfa and Orchard Grass: A Summary of Experiments from 1952 through 1965. A. E. Hitchcock, D. C. McCune, L. H. Weinstein, D. C. MacLean, J. S. Jacobson, and R. H. Mandl 363
Maintenance of a Functional Environment in the Lower Portion of the Hudson River Estuary: An Appraisal of the Estuary. Edward H. Buckley 387

Note

Western and South American Species of *Solanum* in New York State. S. S. Ristich 397
Reviewers of Manuscripts, Vol. 24 402
Index 403

ERRATA

Vol. 23, page 384, column 1, line 7 from bottom, "Hardley" should read "Hardev"
Vol. 23, page 387, column 1, line 16 from bottom, "Gershion" should read "Gershon"
Vol. 23, page 388, column 1, line 27, "steptomycin" should read "streptomycin"
Vol. 23, page 388, column 1, line 28 should read "acid incorporation by, 127"
Vol. 23, page iii in Table of Contents, line 10, "Klieforth" should read "Kliefoth"
Vol. 24, page 5, column 2, line 14, "*Dinitrophenythydrazone*" should read "*Dinitrophenylhydrazone*"
Vol. 24, page 107, Table 3, line 2 in title should read "^{14}C-amino acyl-tRNA"
Vol. 24, page 107, column 2, line 5 should read "messenger"
Vol. 24, page 144, Table 2, footnote *, line 4 should read " . . . $t\frac{1}{2}$ = time required"
Vol. 24, page 202, column 1, line 1, "somes" should read "polysomes"
Vol. 24, page 223, Table 9, last column, line 4 from bottom, "(1)" should not be italicized
Vol. 24, page 256, column 2, line 23, "3,5-dimethyl-" should read "1,5-dimethyl-"
Vol. 24, page 259, column 2, line 19 from bottom, "167" should read "157"
Vol. 24, page 260, column 1, line 25, "12" should read "20"